Transmitter #1

	Model:	A03915	Test Number:	191105				
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.							
	dBi = dB gain compared to an isotropic radiator.							
	S = power density in mW/cm^2							
		Transmitter Output power (dBm)	0.70					
		Transmitter Output power (mW)	1.17					
Output Power for % duty Cycle operation (Watts)		100	0.0012		Antenna Gain (dBi)	1.9		
	Output Power for 100% duty Cycle operation (Watts)		0.00		Antenna Gain (Numeric)	1.55		
Tx Frequency (MHz)	2442	Calcualtion power (Watts)	0.00	dBd + 2.17 = dBi	dBi to dBd	2.2		
					Antenna Gain (dBd)	-0.27		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	0.70		Antenna minus cable (dBi)	1.90		
	Calculated ERP (mw)	1.104						
	Calculated EIRP (mw)	1.820			EIRP = Po(dBM) + Gain (dB)			
					Radiated (EIRP) dBm	2.600		
	Power density (S) mW/cm² = EIRP / (4 p r^2)				ERP = EIRP - 2.17 dB			
	r (cm) EIRP (mW)				Radiated (ERP) dBm	0.430		

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
5	mW/cm²	Frequency (MHz)	Occupational Limit (mW/cm²)	Public Limit (mW/cm²)
50	W/m²	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1	mW/cm²	1,500-10,000	5	1
10	W/m²			

	Occupational Limit			
$0.6455f^{0.5}$	W/m²	IC radio frequency radiation exposure limits per RSS-102		
39.7	W/m²	Frequency (MHz)	Occupational Limit (W/m²)	Public Limit (W/m²)
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
$0.02619f^{0.6834}$	W/m²	6,000-15,000	50	
5.4	W/m²	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

f = Transmit Frequecny (MHz)			f (MHz) =	2442 MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	1.1749 mW
Duty cycle (percentage of operation)			% =	100 %
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	1.17 mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	2.17 numeric
S_{20} = Power Density of device at 20cm (mW/m²)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (mW/m²) =	0.00 mW/m²
S_{20} = Power Density of device at 20cm (W/m²)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (W/m²) =	0.01 W/m²
S_L = Power Density Limit (W/m²)			S_L (W/m²)=	5.412 W/m²
R_C = Minimum distance to the Radiating Element for Compliance (cm)		$R_C=\sqrt{(P_AG_N/4\pi S_L)}$	R_C (cm) =	0.6 cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m²)		$S_C=(P_AG_N)/(4\pi R_C)^2$	S_C (W/m²) =	5.41 W/m²
R_{20} = 20cm			R20=	20 cm
	For Complaince with Canada General Population Limits, User Manual must indicate a minimum seperation distance of			0.6 cm
	Or in Meters for Complaince with Canada General Population Limits, a minimum seperation distance of			0.01 Meters

Summary: Standalone MPE Calculations and Summary								
Tx#, Band (MHz)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	S_L (W/m²)	S_{20} (W/m²)	R_C (cm)	S_C (W/m²)
Tx1, 2402-2480	100	2442	1	1.9	5.412	0.01	0.6	5.41
Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	SL (W/m2)	S20 (W/m2)	RC (cm)	SC (W/m2)
Tx2, 2402-2480	100	2440	3.63	2.17	5.409	0.02	1.1	5.41

Simlutaneous MPE Calculation		
	Transmitter 1	Transmitter 2
Tx Frequeny (MHz)	2442	2440
S_{20} (W/m²)	0.01	0.02
S_L (W/m²)	5.412	5.409
Power Ratio (S_L / S_{20})	0.001	0.003
Sum of Power Ratios at 20cm (Tx1 + Tx2)		0.004
Requirement = Σ of MPE Ratio ≤ 1		

Transmitter #2

	Model:	A03915	Test Number:	191105				
MPE Calculator	RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.							
	dBi = dB gain compared to an isotropic radiator.							
	S = power density in mW/cm^2							
		Transmitter Output power (dBm)	5.60					
		Transmitter Output power (mW)	3.63					
Output Power for % duty Cycle operation (Watts)		100	0.0036		Antenna Gain (dBi)	1.3		
	Output Power for 100% duty Cycle operation (Watts)		0.00		Antenna Gain (Numeric)	1.35		
Tx Frequency (MHz)	2440	Calcualtion power (Watts)	0.00	dBd + 2.17 = dBi	dBi to dBd	2.2		
					Antenna Gain (dBd)	-0.87		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	5.60		Antenna minus cable (dBi)	1.30		
	Calculated ERP (mw)	2.972			EIRP = Po(dBM) + Gain (dB)			
	Calculated EIRP (mw)	4.898			Radiated (EIRP) dBm	6.900		
					ERP = EIRP - 2.17 dB			
					Radiated (ERP) dBm	4.730		

Power density (S) mW/cm² = EIRP / (4 p r^2)

r (cm) EIRP (mW)

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
5	mW/cm²	Frequency (MHz)	Occupational Limit (mW/cm²)	Public Limit (mW/cm²)
50	W/m²	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1	mW/cm²	1,500-10,000	5	1
10	W/m²			

	Occupational Limit			
$0.6455f^{0.5}$	W/m²	IC radio frequency radiation exposure limits per RSS-102		
39.7	W/m²	Frequency (MHz)	Occupational Limit (W/m²)	Public Limit (W/m²)
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
$0.02619f^{0.6834}$	W/m²	6,000-15,000	50	
5.4	W/m²	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

f = Transmit Frequecny (MHz)			f (MHz) =	2440 MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	3.6308 mW
Duty cycle (percentage of operation)			% =	100 %
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	3.63 mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	2.17 numeric
S_{20} = Power Density of device at 20cm (mW/m²)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (mW/m²) =	0.00 mW/m²
S_{20} = Power Density of device at 20cm (W/m²)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (W/m²) =	0.02 W/m²
S_L = Power Density Limit (W/m²)			S_L (W/m²)=	5.409 W/m²
R_C = Minimum distance to the Radiating Element for Compliance (cm)		$R_C=\sqrt{(P_AG_N/4\pi S_L)}$	R_C (cm) =	1.1 cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m²)		$S_C=(P_AG_N)/(4\pi R_C)^2$	S_C (W/m²) =	5.41 W/m²
R_{20} = 20cm			R20=	20 cm
	For Complaince with Canada General Population Limits, User Manual must indicate a minimum seperation distance of			1.1 cm
	Or in Meters for Complaince with Canada General Population Limits, a minimum seperation distance of			0.01 Meters

Summary: Standalone MPE Calculations and Summary								
Tx#, Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	S_L (W/m²)	S_{20} (W/m²)	R_C (cm)	S_C (W/m²)
Tx1, 2402-2480	100	2442	1	1.9	5.412	0.01	0.6	5.41
Band (MHZ)	Tx Duty Cycle (%)	Tx Frequeny (MHz)	Power Total (mW)	Antenna Gain (dBi)	SL (W/m2)	S20 (W/m2)	RC (cm)	SC (W/m2)
Tx2, 2402-2480	100	2440	3.63	1.30	5.409	0.02	1.1	5.41

Simlutaneous MPE Calculation		
	Transmitter 1	Transmitter 2
Tx Frequeny (MHz)	2442	2440
S_{20} (W/m²)	0.01	0.02
S_L (W/m²)	5.412	5.409
Power Ratio (S_L / S_{20})	0.001	0.003
Sum of Power Ratios at 20cm (Tx1 + Tx2)		0.004
Requirement = Σ of MPE Ratio ≤ 1		